

Amendments to the claims:

1. (Currently Amended) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine, comprising the steps of:

heating the exhaust gas at a temperature greater than 70°C;

generating plasma in the exhaust gas discharged from the lean burn engine, the exhaust gas containing the particulate material, to thereby produce a plurality of $O(^1D)$ radicals and subsequently produce a plurality of per-hydroxide excited species; and

oxidizing the particulate material by the per-hydroxide excited species;

wherein a decrement rate of the particulate material is greater than 84%.

2. (Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 1, wherein, in plasma generating conditions, an intensity E of an electric field is set at a value equal to or larger than 3.0 kV/mm, and a power density Dw is set at a value equal to or larger than 1 W/cm³.

3. (Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 1 or 2, wherein a surface of at least one of opposed electrodes which is opposed to another electrode is covered with a dielectric.

4. (Withdrawn - Currently Amended) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine and

comprising a carbon solid fraction and a soluble organic fraction covering the carbon solid fraction, the process comprising the steps of: subjecting the soluble organic fraction to the reaction with oxygen under the presence of a catalyst to oxidize the soluble organic fraction; generating plasma in the exhaust gas to produce plasma excited species; and oxidizing the carbon solid fraction by the plasma excited species; wherein a decrement rate of the particulate material is greater than 84%.

5. (Withdrawn - Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 4, wherein the catalyst is at least one selected from the group consisting of Pt, Pd, Rh, Cu Ag and Au.

6. (Withdrawn - Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 4 or 5, wherein, in plasma generating conditions, an intensity E of electric field is set at a value equal to or larger than 3.0 kV/mm, and a power density Dw is set at a value equal to or larger than 1 W/cm³.

7. (Withdrawn - Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 4 or 5, wherein the surface of at least one of opposed electrodes which is opposed to the other electrode is covered with a dielectric.

8. (Withdrawn - Currently Amended) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine, comprising the steps of: generating plasma in the exhaust gas discharged from the

lean burn engine and containing the particulate material to produce a plurality of nitrogen dioxide molecules and a plurality of ozone molecules; and oxidizing the particulate material by the nitrogen dioxide molecules and the ozone molecules; wherein a decrement rate of the particulate material is greater than 84%.

9. (Withdrawn – Currently Amended) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine, comprising the steps of: generating plasma in the exhaust gas discharged from the lean burn engine and containing the particulate material to produce a plurality of nitrogen dioxide molecules and a plurality of ozone molecules; oxidizing the particulate material by the nitrogen dioxide molecules and the ozone molecules; and subjecting the particulate material to the reaction with the nitrogen dioxide molecules and the ozone molecules in the presence of a catalyst to oxidize the particulate material; wherein a decrement rate of the particulate material is greater than 84%.

10. (Withdrawn - Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 9, wherein the catalyst is at least one selected from the group consisting of Pt, Pd, Rh, Cu Ag and Au.

11. (Withdrawn - Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 8, 9 or 10, wherein, in plasma generating conditions, an intensity E

of electric field is set at a value equal to or larger than 3.0 kV/mm, and a power density D_w is set at a value equal to or larger than 1 W/cm³.

12. (Withdrawn - Previously Presented) A process for decreasing the content of a particulate material contained in an exhaust gas from a lean burn engine according to claim 8, 9 or 10, wherein the surface of at least one of opposed electrodes which is opposed to the other electrode is covered with a dielectric.